

Safety trial of a locally-developed trunk and lower limb rehabilitation robot

Submission date 17/01/2025	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
Registration date 24/01/2025	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 23/01/2025	Condition category Other	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

The TAYO project aims to improve physical therapy care using a device called the Lower Limb Mobilization (LLMo). This device helps physical therapists perform passive range of motion exercises for people in the early stages of recovery after a stroke.

Who can participate?

Healthy individuals aged 18 to 65 years old.

What does the study involve?

Participants will perform range of motion exercises using the LLMo device. During the trial, their vital signs, comfort, and pain levels will be continuously monitored to ensure the device's safety.

What are the possible benefits and risks of participating?

Participants may feel some stretching in their lower extremities. Although the device is external and does not exchange energy with the patient, there is a risk associated with the device moving the participants' limbs. The device has passed rigorous mechanical and electrical tests to ensure safety.

Where is the study run from?

The study is conducted at the De La Salle University - Laguna Campus research lab (Philippines)

When is the study starting and how long is it expected to run for?

March 2023 to June 2023

Who is funding the study?

The study is funded by the Department of Science and Technology - Philippine Council for Health Research and Development (DOST-PCHRD)

Who is the main contact?

Engr. Julius Banayo, julius.banayo@dlsu.edu.ph

Contact information

Type(s)

Principal investigator

Contact name

Dr Armyn Sy

ORCID ID

<https://orcid.org/0009-0005-4838-2735>

Contact details

2401 Taft Ave.
Manila
Philippines
922
+63 9177748816
armyn.sy@dlsu.edu.ph

Type(s)

Public, Scientific

Contact name

Mr Julius Banayo

Contact details

727V+352, LTI Spine Road, Laguna Blvd
Biñan, Laguna
Philippines
4024
+63 9162870211
julius.banayo@dlsu.edu.ph

Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

AHMC 2023-01

Study information

Scientific Title

A pilot study among normal subjects on the safety and functionality of a locally-developed trunk and lower limb rehabilitation robot

Study objectives

The lower limb rehabilitation robot is safe to use among healthy participants

Ethics approval required

Ethics approval required

Ethics approval(s)

approved 23/03/2023, Asian Hospital and Medical Center Research Ethics Committee (2205 Civic Dr, Muntinlupa, Metro Manila, 1780, Philippines; +63 (02) 8771 9000; info@asianhospital.com), ref: AHMC 2023-01

Study design

Interventional non-randomized

Primary study design

Interventional

Study type(s)

Safety

Health condition(s) or problem(s) studied

Passive range of motion among healthy adult participants

Interventions

After meeting the inclusion criteria and medical evaluation, participants' vital signs (blood pressure, heart rate, and oxygen saturation) and lower limb measurements were recorded prior to the trial. They were then secured to the Lower Limb Mobilization (LLMo) device and performed three repetitions of each prescribed lower limb exercise. Lower limb angles were measured after each repetition. Throughout the exercises, the attending physiatrist and physiotherapist consistently monitored the participants, sought feedback and pain assessments from participants. Following the exercises, participants' vital signs were recorded before, during and at end of exercise. Additionally, they were given a survey to assess their perceptions of the LLMo's safety, feasibility, and acceptability while performing exercises.

Intervention Type

Device

Phase

Phase 0

Drug/device/biological/vaccine name(s)

Lower Limb Mobilization Device (LLMo Device)

Primary outcome(s)

Safety evaluation:

1. Safety checklist used to inspect device before the trial
2. Pain assessment administered as needed during the exercises
3. Adverse events reported as needed throughout the entire trials

Key secondary outcome(s)

1. Range of Motion of each exercise measured using goniometer at the end of each movement
2. Range of Motion of each exercise measured using device software at the end of each

movement

3. Patient perception of safety, feasibility, and acceptability measured using a survey at the end of each session

4. Comments regarding comfort recorded verbally over the course of the whole exercise session; Physiatrist wrote down notes comments in participant chart

Completion date

17/06/2023

Eligibility

Key inclusion criteria

1. Be able to follow instructions

2. Be at least 5'4" (1.63 m) to 6'2" (1.87 m)

3. Weigh less than 200 kg

4. Have full use of their trunk and lower extremities

5. Agree to have medical clearance sponsored by the research prior to participation (validity: 1-2 weeks from appointed clinical study participation)

6. Be fully vaccinated against COVID-19 (2 completed doses, with or without boosters)

Participant type(s)

Healthy volunteer

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Upper age limit

65 years

Sex

All

Total final enrolment

18

Key exclusion criteria

With any known disabilities or comorbidities

Date of first enrolment

01/05/2023

Date of final enrolment

26/05/2023

Locations

Countries of recruitment

Philippines

Study participating centre

De La Salle University - Laguna Campus

727V+352, LTI Spine Road, Laguna Blvd

Biñan, Laguna

Philippines

4024

Sponsor information

Organisation

DLSU - Evelyn D. Ang - Institute of Biomedical Engineering and Health Technology

Funder(s)

Funder type

Government

Funder Name

Department of Science and Technology, Republic of the Philippines

Alternative Name(s)

Republic of the Philippines, Department of Science and Technology, Department of Science and Technology, Philippines Department of Science and Technology, Department of Science and Technology, Philippines, Kagawaran ng Agham at Teknolohiya, DOST

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

Philippines

Results and Publications

Individual participant data (IPD) sharing plan

The data-sharing plans for the current study are unknown and will be made available at a later date

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Protocol file	version 2	10/02/2023	23/01/2025	No	No